

FOR NATIONAL PHASE SUBMISSION

2

CLAIM AMENDMENTS

WHAT IS CLAIMED IS:

This listing of the claims will replace all prior versions, and listing, of claims in the application:

1. **(Currently Amended) ~~Method~~ A method** for establishing a correlation between a first state of a piezoelectric component ~~(1, 20)~~ having a piezoceramic element and a second state of the component, the second state of the component being generated from the first state of the component by polarization of the piezoceramic element of the component, with the following method steps:

- a) ~~provision providing of~~ a first group of components each with the first state,
- b) determining~~ation of~~ at least one specific characteristic of each of the components of the first group,
- c) polarizing~~ation of~~ the piezoceramic element of the components of the first group, with a corresponding component of a second group resulting from each of the components of the first group and having the second state,
- d) determining~~ation of~~ at least one specific characteristic of each of the components of the second group and
- e) establishing~~ment of~~ the correlation by comparing the specific characteristic of each of the components of the first group and the specific characteristic of the corresponding component of the second group.

FOR NATIONAL PHASE SUBMISSION

3

2. (Currently Amended) ~~Method~~ A method according to claim 1, ~~in which wherein~~ a number of specific characteristics of the component with the first state are determined and used to establish the correlation with the specific characteristic of the component with the second state.

3. (Currently Amended) A method according to claim 1, wherein Method according to claim 1 or 2, in which the specific characteristic of the component with the first state is selected from the group loss angle ~~($\tan \delta$)~~ of the piezoelectric layer, insulation resistance of the piezoelectric layer, density of the piezoelectric layer, relative permittivity of the piezoelectric layer, ferroelastic behavior of the component, module of elasticity ~~(E module)~~ of the component, longitudinal sound velocity of the component and/or temperature sensitivity of the capacity of the component.

4. (Currently Amended) A method according to claim 1, wherein Method according to one of claims 1 to 3, in which a lead zirconate titanate is used as the piezoceramic element.

5. (Currently Amended) A method according to claim 4, wherein Method according to claim 4, in which a ratio of a rhombohedral part by volume with a rhombohedral phase and a tetragonal part by volume with a tetragonal phase is used as the specific characteristic of the component with the first state.

FOR NATIONAL PHASE SUBMISSION

4

6. (Currently Amended) A method according to claim 1,
wherein Method according to one of claims 1 to 4, in which
components of the first group are used, the first state of
which is characterized by partial polarization of the
piezoceramic element in each instance.

7. (Currently Amended) A method according to claim 6,
wherein Method according to claim 6, in which for the purposes
of partial polarization the piezoceramic element of the
components is polarized without pressure at room temperature.

8. (Currently Amended) A method according to claim 6,
wherein Method according to claim 6 or 7, in which for the
purposes of partial polarization the piezoceramic element of
the components is polarized at a poling temperature that is
higher than room temperature.

9. (Currently Amended) A method according to claim 6,
wherein Method according to one of claims 6 to 8, in which for
the purposes of partial polarization a mechanical compressive
stress is exerted on the piezoceramic element of the
components.

10. (Currently Amended) A method according to claim 6,
wherein Method according to one of claims 6 to 9, in which for
the purposes of partial polarization the component is heated
to above the Curie temperature of the piezoceramic element and
a polarization field with a low field strength of less than
100 V/mm is applied as the component cools to room
temperature.

FOR NATIONAL PHASE SUBMISSION

5

11. (Currently Amended) A method according to claim 1,
wherein Method according to one of claims 1 to 10, in which a
piezoelectric component is used, which has at least one
piezoelement~~-(10)~~ with at least two electrode layers~~-(11, 12)~~
arranged one on top of the other and at least one
piezoelectric layer~~-(13)~~, containing the piezoceramic element,
arranged between the electrode layers.

12. (Currently Amended) A method according to claim 11,
wherein Method according to claim 11, in which a multilayer
actuator is used as the piezoelectric component, in which a
number of piezoelements~~-(10)~~ are arranged to form a stacked
actuator body~~-(20)~~.

13. (Currently Amended) A method for using~~Use of the a~~
correlation according to claim 1 to predict the specific
characteristic of a specific piezoelectric component with the
second state from the determined specific characteristic of
the specific component with the first state.

14. (Currently Amended) A method according to claim 13,
wherein Use according to claim 13, with the quality of a
component being judged based on the prediction.

15. (Currently Amended) A method for using~~Use of the a~~
correlation according to claim 1 to configure a polarization
method, with which the piezoceramic element of the component
can be polarized, such that a component with a specific second
state is obtained.